

Rattan sector in Hainan Island, China: a case study

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Abstract: Hainan Island is the biggest supplier of domestic rattan canes in China and is considered the best area to develop rattan plantation in large-scale. This paper discusses the rattan production in Hainan Island on the basis of comprehensively collected information on rattan through interviewing with farmers, middle man, manufacture and official, on-site observation and literatures. The stock of available rattan is more than 25×10^4 kg, but the real production annually is 4×10^5 kg. The area of rattan plantation established during 2000–2005 was about 10 000 hm², however, they don not produce yet. Four indigenous rattan species (*C. Simplicifolius*, *C. Faberii*, *C. Tetracanthus*, *D. margaritae*) and three kinds of exotic canes are mainly utilized in Hainan island. Large quality of canes is treated as timber regulated by government, tax should be paid and a license should be applied from the government if canes are transport out of Hainan Island. The production-to-consumption flow of rattan in Hainan Island was drawn out based on the investigation. Constraints and advantages of the rattan sector in Hainan are identified and recommendations are proposed finally.

Keywords: Rattan sector; Hainan Island; Production-to-consumption

Introduction

Hainan Province is the southernmost province of China, being comprised of several islands with a total area of 34 500 km². Hainan Island is the largest part of Hainan Province, covering a land area of 33 900 km². It is stretching in latitude from 18°10' to 20°10' N and in longitude from 108°37' to 111°03' E (Fig. 1). Almost all the populations of Hainan Province settle in this island. Hainan Island has the richest natural rattan resources in China. There are three genera with a total of 14 species of rattan occurring naturally in natural forests (Han 2001).

Hainan Island is not only the best area for growing rattan but also the biggest supplier of domestic cane in China. Recognizing its advantages in natural condition for rattan growth, Hainan Island is considered a great area to develop rattan plantations extensively. Although some companies and farmers have taken actions to plant rattans after a seminar held in 2000, they are yet worried about the future of rattan plantation, part of the reason is a lack of information in rattan sector in Hainan Island. This paper is to explore the rattan sector comprehensively in Hainan Island,

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which help to treat rattan development reasonably in Hainan Island.

Survey methods

Semi-interview was employed in this study. Interviews with rattan planters, collectors, traders, government officers, and manufacturers in Hainan Island were carried out from 2004 to 2005. Rattan planters were interviewed mostly for information on the rattan species they planted; rattan collectors were interviewed mostly for which rattan species they collected and how they processed after cutting; traders were inquired for which rattan species they bought, and what treatments they used to process purchased rattans, and to whom purchased rattans were sold; government officers were interviewed for what policies were applied in rattan harvest and trade; and finally, manufacturers mostly for what rattan species they consumed and where they were obtained from.

Results

Rattans mainly utilized in Hainan Island

Four native species and three foreign species/types are used in the rattan industry in Hainan Island. Their utilization characteristics are described as follows.

1. *Calamus tetracanthus* Hance: Un-split, un-peeled canes of this species are generally used in making baskets. Sometimes its peelings are used in banding chairs and basketry. This species is rich in Hainan Island.

2. *C. simplicifolius* C. F. Wei: It is the best species in Hainan Island, both un-split, un-peeled canes and peelings are used. This species is scarce in Hainan Island.

3. *C. faberii* Becc.: Un-split, un-peeled canes of this species are generally used as auxiliary materials for consolidating furniture frames. Its peelings are not as good as those of *C. simplicifolius* for having many burrs. It is rich in Diaoluoshan, Hainan Island.

4. *Daemonorops margaritae* (Hance) Becc.: Un-split, un-peeled canes of this species are used because their skin has a good color and quality. Its cores are poor quality. This species is rich in Hainan Island, especially in Baoting and Wuzhishan.

The native species *C. rhabdocladus* Burret was also tested for utilization. Its skin is smooth and has a beautiful color, but its fiber is loose. It can be used in the form of un-split, un-peeled canes.

5. *C. manan* Miq.: It is an imported species and its cane is the best. Its shape by bending once is kept after releasing. It is rarely

used in Hainan Island because it is expensive.

6. Badang: It is a Chinese name for a group of rattan species imported, among which some are heavy, some are light. Its cane is inferior to *C. manan*, because its shape cannot be kept unless it is bent for two to three days. However, this species is cheaper than *C. manna*, thus it is used widely in Hainan Island.

7. Shateng: It is a Chinese name for another group of rattan species imported, skins of which having silica. Its cane is light and cheap, but is not used widely in Hainan Island.

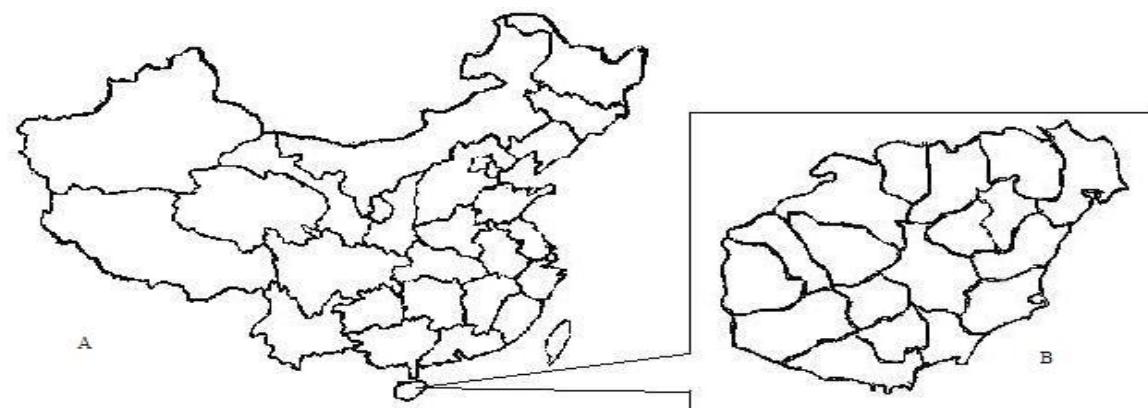


Fig. 1 Location of Hainan Island in China (A: Sketch map of P. R. China; B: Sketch map of Hainan Island)

Rattan resources

The coverage of forest in Hainan Island was 50.5% in 2001, consisting of 614 800 hm² of natural forests and 845 900 hm² of acacia, eucalypts, rubber and other tree species plantations. Rattan occurs in different types of natural forest. According to the investigation in late 1980s, there were 5 690 clumps of three genera representing seven species of rattan per hectare in tropical mountain rainforests, 2 380 clumps of three genera representing six species of rattan per hectare in tropical evergreen season rain forests, 800 clumps of one genus representing one species of rattan per hectare in tropical deciduous forests (Li *et al.* 2000). According to the inventory in 2003 and 2004 (Du 2004; Du 2004), the harvestable stems of *D. margaritae* in six county/city districts amounted to 70 979 390 poles, equating to 23 659 000 kg basing on the assumption that the weight of 2600–3000 poles is 1000 kg by an experienced middle man.

More than 9 000 hm² of rattan plantations have been established during 2000–2005 in Hainan Island. Most plantations are of *D. margaritae*, *C. tetracanthus* and *C. simplicifolius*. Among the three native species, the area of *D. margaritae* plantations is the largest, and the area of *C. simplicifolius* plantations is the smallest. The reason why the area of *C. simplicifolius* plantations is smaller than those of *D. margaritae* and *C. tetracanthus* is that planters could not find as many fruits of *C. simplicifolius* as those of *D. margaritae* and *C. tetracanthus* in the wild.

It was reported that the annual production of wild collected rattans in Hainan Island had declined from 10×10⁶ kg in the 1960s to 5 000 000 kg in the 1980s (Xu *et al.* 2001), however, rattan production across Hainan Island was estimated at 10×10⁵–20×10⁵ kg in 2003–2005 by the trader interviewed. Actually, basing on data given by the trader interviewed, the volume

of canes produced is no more than 18×10⁴ kg before 1997 and after 2000, about 6×10⁴ kg during 1998–1999.

Rattan collection

Rattan collection almost completely depends upon rattan traders in terms of time, species, specifications and price. Rattan collection begins as soon as rattan traders announce they are ready to buy it. Usually it is from December to May, the dry season in Hainan Island. Rattan species usually collected are *C. simplicifolius*, *C. faberii*, *C. tetracanthus* and *D. margaritae*. Collectors know these desirable rattan species well. But *C. simplicifolius* is so rare that they mix it with *D. margaritae* when sold. The length of collected canes required by the traders is 4 m, sometimes the length required are 3.5 m, 2.0 m and 1.5 m. For small rattan species such as *C. tetracanthus*, their canes are coiled and sold by weight. Rattan collectors range in age from young children to old people, most parents bring young children along to help if possible. Teenagers are able to do the collecting independently, but they harvest shorter plants and waste a lot when they encounter long stems twisting up into trees, which they are unable to pull down. According to collectors interviewed, they could collect a maximum of 50 poles per day individually. When cutting, they slash sheaths around the canes, and cut them into 4-m poles. Collectors do not apply any treatment to fresh canes after cutting. They sell the fresh canes to traders without drying them.

Rattan traders

Traders purchase canes from rattan collectors. Sometimes rattan manufacturers play the part of traders. The professional rattan traders interviewed purchased fresh rattans of *D. margaritae* by

the pole not by weight. Formerly 3 000 to 4 000 poles could be purchased per day, but only 1 000 poles could be purchased per day in 1998 and 1999. When the volume of collected rattan amounted to the full capacity of a truck, they would employ a truck to carry it to store site and dry them by sunlight. They bought canes in Wuzhishan, Sanya, Baisha, and Dunchang areas etc. and sold canes to manufacturers from Hainan Island, Guangxi, Guangdong, and Fujian. More than 50% was sold to provinces other than Hainan Island.

Rattan manufacturers

Presently there is only one manufacturer, named Hainan Lingshui Rattan & Bamboo Handicraft Co., LTD, in Hainan Island. It exports rattan products valued at 1 million US dollars annually, having 350 to 380 workers in high season, 150 to 180 in low

season. Canes of domestic rattan species consumed were bought from difference places in Hainan Island, and all canes and cores of foreign rattan species consumed were bought from dealers in Nanhui, Guangdong Province. Canes of foreign species were *C. manan*, badang, and another species called shateng by dealers. The canes and cores that the company bought from 1996 to 2003 are shown in Table 1. In order to compare these data, the volumes in pole were converted into weight by the assumption that 3 000 poles weighed 1 000 kg. The volumes of cores were assumed to be the volumes of canes. The Fig. 2 was given basing on the converted data. It was concluded that from 1996 to 2003, the annual volume of canes consumed increased along with the annual volume of exotic canes, while the annual volume of indigenous decreased. More and more exotic canes were used in the company, however, indigenous canes still outweighs exotic canes.

Table 1. Canes and cores supplied to rattan manufacturer in Hainan Island

| Original | Canes species | Year | | | | | | |
|---------------|--------------------------|---------------------|----------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| | | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
| Hainan Island | <i>C. simplicifolius</i> | absent | absent | absent | absent | absent | absent | 2×10^3 kg |
| | <i>C. faberii</i> | 6000 poles | 6300 poles | 4300 poles | 4500 poles | 6800 poles | 7000 poles | 5500 poles |
| | <i>C. tetracanthus</i> | 40×10^3 kg | 75×10^3 kg | 82×10^3 kg | 68×10^3 kg | 71×10^3 kg | 83×10^3 kg | 72×10^3 kg |
| | <i>D. margaritae</i> | 12000 poles | 26000 poles | 24000 poles | 20000 poles | 20000 poles | 37500 poles | 36000 poles |
| Foreign | Canes | 0 | 0 | 0 | 0 | 20×10^3 kg | 22×10^3 kg | 31×10^3 kg |
| | rattan cores | 5×10^3 kg | 4.3×10^3 kg | 7×10^3 kg | 6.5×10^3 kg | 7.6×10^3 kg | 7.3×10^3 kg | 8.2×10^3 kg |
| | | | | | | | | 8.6×10^3 kg |

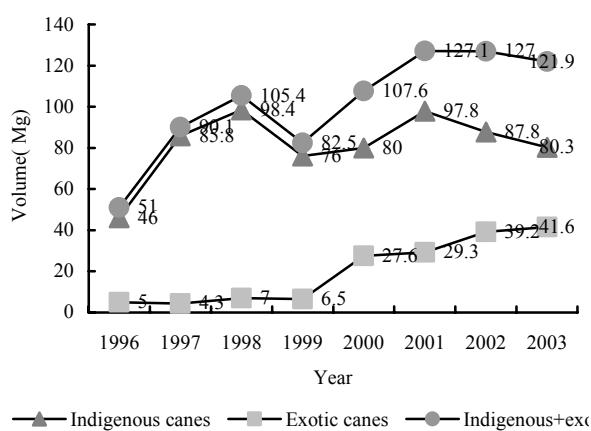


Fig. 2 Canes demand during 1996–2003 in Hainan Island

Policies on rattan management

According to government officers interviewed, there are no specific policies on rattan collection and trade. After getting permission from forestry bureaus of local government, traders set up stops in local communities. It is required that only rattan plants longer than 6 meters can be harvested in the wild, but it is impossible to monitor collectors to follow the regulation. Traders pay taxes to the forestry bureaus for rattans they buy from collectors, the rate varies from 10 US dollars to 25 US dollars per 1000 kg.

However, canes in large volume were classified into and managed as timber by the Management Regulations on Timber

of Hainan Province (People's Government of Hainan Province 2000).

Production-to-consumption flow in Hainan Island

Based on the results above, the production-to-consumption flow of rattan in Hainan Island is shown in Fig. 3. Neither collectors nor traders in Hainan Island do any preliminary processing to canes they harvest as their counterparts do in countries such as Indonesia, Malaysia, and the Philippines (Mohmod 1992). It is rattan manufacturers who finish the work to the canes that they buy from collectors. The reason is partly that the number of canes collected by collectors or traders in a short time is small, partly that they don not have the knowledge of how to treat fresh canes.

Conclusions

Opportunities and constraints for rattan sector in Hainan Island

Based on the results, it is found that there are opportunities and constraints in the rattan sector in Hainan Island. The greatest opportunity is that the government recognized Hainan Island has an advantage in the cultivation of rattans and developed a plan to establish 50 000 hm² of rattan plantations with support from GTZ and INBAR. More than 9 000 hm² of rattan plantations were established in the period 2000–2005. The full realization of the plan will significantly increase the rattan production in Hainan Island, and provide the local industries with a cheap and guaranteed supply of raw rattan.

However, there are some constraints facing the rattan sector in Hainan Island. Firstly, collectors and traders don not have the knowledge to treat fresh canes till now. The damage to

not-treated canes can be overlooked now because each collector can harvest only a few canes per day in the wild, but the lack of treatment on fresh canes will represent a significant loss if canes are produced in large quantities. Secondly, presently there is only one manufacturer in Hainan Island, thus it is very difficult to

attract foreign customers at such a scale. Every year, the sole manufacturer has to attend the Canton fair to obtain orders. Finally, the resource of elite species like *C. simplicifolius* is yet scarce. If foreign canes and cores are not available, cores of other less-desirable species will decrease the quality of rattan products.

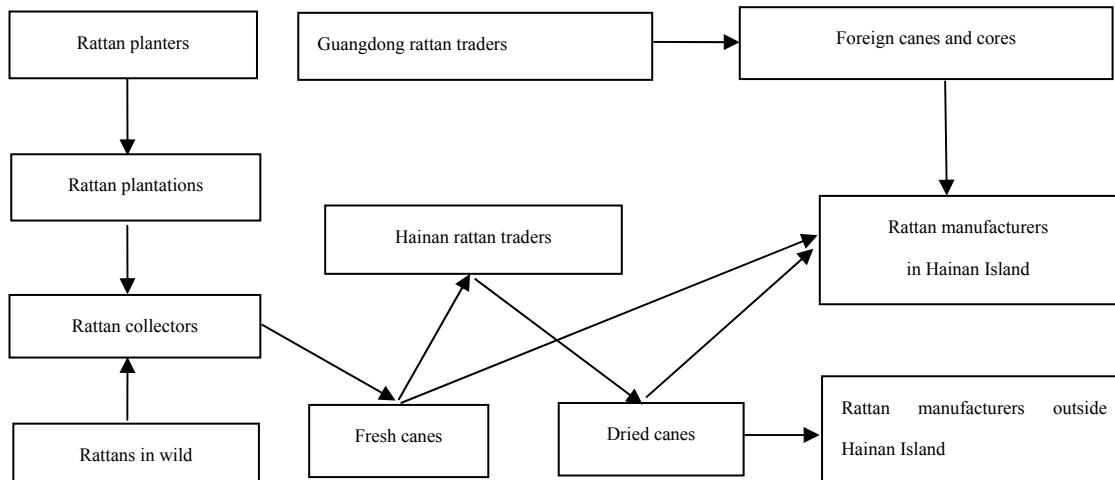


Fig. 3 The production to consumption system of rattan in Hainan Island

Recommendations

After analyzing the opportunities and constraints of rattan sector in Hainan Island, following recommendations are proposed:

1. The governments in Hainan should play a major role to increase rattan resource. Firstly, reasonable regulations should be issued on harvesting wild rattans. For example, the policy to harvest plants longer than 6 m is not enough, because such plants haven't produced fruits yet. Without fruits, new rattan plants won't become established, and old plants will die eventually even though they produce new suckers. Thus the maintenance and improvement of resources in the wild will be a problem. Now, traders even buy canes of only 1.5 meters, which damages many very young plants in the wild. Effective policies are needed for conservation and improvement of wild rattan resources. Secondly, the government should train rattan collectors, aiming to improve their awareness on rattan conservation and processing. Finally, the government can bridge rattan producers within Hainan Island with rattan consumers of other province.

2. Rattan manufacturers should explore new technologies to make the best use out of species inferior to *C. simplicifolius*, and make more competitive products to attract customers from the Canton fair and other fairs. Or they can set up a branch factory with others in the Guangzhou area.

3. Traders and collectors should obey policies and follow regulations issued by the government. Additionally, they should participate in different training workshops as many as possible and apply the knowledge to rattan planting and collecting.

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